

REMARKS

Claims 1 and 3-9, and 11-35 are pending in the above-identified application and stand rejected.¹

Rejections Under 35 USC §102

Claims 16-20 stand rejected under 35 USC §102(b) as being anticipated by Horowitz et al.² (U.S. Pat. No.6,321,282; “Horowitz”). Applicant takes each rejection in turn.

Claim 16 recites a “transceiver” that includes e.g. a “transmit mixer.” The examiner finds support for the “transmit mixer” in Horowitz’s Figure 23: “the transmit mixer (516) [includes] a phase control port (392)” (Office action, page 3). Element 516 of Horowitz is not a transmit mixer, however. According to Horowitz, “Fig. 23 illustrates...an embodiment of Receive DLL/PLL 496” and a “Receive Timing Control Register 392” (Horowitz, 16:62-64 and 20:15). Further, phase mixer 516 is used in conjunction with other elements of Figure 23 to develop a signal RCLK, which Horowitz identifies as “the internal receive clock signal, RCLK” (Horowitz, 19:30-31, emphasis added). Because mixer 516 is part of the receiver, and is used to create the receive clock signal, mixer 516 cannot be a “transmit mixer” as the examiner asserts. The rejection of claim 16 should therefore be withdrawn.

A *prima facie* rejection based upon anticipation requires that a single reference disclose all claim elements. Because element 516 of Horowitz is not a “transmit mixer,” the rejection of claim 16 fails to meet this requirement and should therefore be withdrawn. Applicant has nevertheless amended claim 16 to clarify the distinction between what is claimed and the Horowitz disclosure. Claim 16, as amended, now recites two transmit mixers, two transmit phase controllers, and two transmitters. The phase controllers of the amended claim “dynamically control ... respective first and second phase control signals to misalign ... first and second data.” This aspect of claim 16 is not

¹ The Office Action Summary lists claims 1 and 3-29. However, applicant introduced claims 30 and 31 in a 25 January 2006 Preliminary Amendment, and canceled claim 10 and added claims 32-35 on 31 October 2007 in response to the last Office Action. The pending claims are therefore 1 and 3-9, and 11-35.

² Jared Zerbe, the inventor of the instant application, is also an inventor for the Horowitz patent.

suggested in Horowitz, and thus further distinguishes claim 16. The rejection of claim 16 should therefore be withdrawn for this additional reason.

Claims 17-20 depend from claim 16, and thus distinguish Horowitz for the same reasons claim 16 distinguishes. These claims also distinguish for other reasons, and have been amended to further clarify some of the points of distinction. The rejections of claims 17-20 should therefore be withdrawn.

Rejections Under 35 USC §103

Claims 1, 3-9, 11-15, 21, and 24-29 stand rejected under 35 USC §103(a) as being unpatentable over Thibeault et al. (App. No. 2003/00117183, hereinafter Thibeault) in view of Horowitz. To establish a *prima facie* case of obviousness using a combination of references, the references (1) "must teach or suggest all the claim limitations," and (2) "there must be some suggestion or motivation... to modify the reference or combined reference teachings" (MPEP 706.02J). The examiner has failed to present such a case.

Claim 1

Claim 1, as amended, recites e.g.

a...phase-adjustment circuit that derives [a] first transmit clock and [a] second transmit clock from a reference clock signal and adjusts the first transmit clock with respect to the second transmit clock to vary the phase of the first transmit data with respect to the second transmit data;

wherein the phase-adjustment circuit dynamically varies the phase of the first transmit data with respect to the second transmit data to misalign the first and second transmit data at a victim receiver.

(Claim 1, emphasis in original to show amendment.) The examiner admits that Thibeault fails to teach versions of these elements that appeared in claim 1 prior to the instant amendment (Office Action, page 6). The examiner believes, however, that these features are found in Horowitz. In particular, the "phase-adjustment circuit" is to be found at Horowitz 15:31-52 and the dynamic aspect of the phase-adjustment circuit at 20:1-20 (Office Action, pages 6 and 7). Applicant disagrees with the examiner's reading of the cited portions of Horowitz, but has nevertheless amended claim 1 to advance allowance.

Considering first Horowitz 15:31-52, that text refers to Figure 20 of Horowitz,

and is reproduced below with Figure 20 for ease of review. Figure 20 of Horowitz “illustrates schematically an embodiment of the Current/Symmetry Control Circuitry associated with the Bus Transmitter of FIG. 16” (Horowitz, 7:12-15). The adjustment to which the examiner is referring is to the output driver current used to express a data signal, and not to an adjustment of a “transmit clock...to vary the phase of ...transmit data” as recited in claim 1. Indeed, the transmit clock is neither mentioned nor depicted in the cited text or Figure 20. Horowitz 15:31-52 thus cannot support the “phase-adjustment circuit” of claim 1. Horowitz 20:1-20 describes a receive PLL/DLL, and thus cannot support the dynamic variations of the transmit data recited in claim 1. The examiner has thus failed to establish a *prima facie* case of obviousness, so the rejection should be withdrawn.

as an input to Comparator 464. Comparator 464 compares the input signal from MUX 460 to a reference voltage, V_{ref} . The output signal from Comparator 464 is coupled to the Up/Down input of Counter 470. If the MUX output is greater than V_{ref} , Comparator 464 forces Counter 470 to increase its count, and if the MUX output is less than V_{ref} , then Comparator 464 forces Counter 470 to decrease its count. Comparator 464 drives its output signal up or down until the V_{out} signal causes the voltage at the selected tap of the resistive divider to equal V_{ref} . When this occurs, the current output by Output Current Driver 422 has reached the desired level indicated by the topography dependent parameter in Symmetry Control Register 396. By setting the value of the topography dependent parameter stored in Symmetry Control Register 396 to select one of the different taps of Resistor Network 67 2, an appropriate degree of asymmetry may be produced in the output voltage swing. Thus, the topography dependent parameter stored in Symmetry Control Register 396 can be used to adjust the midpoint between a high output voltage and low output voltage up or down relative to V_{ref} .

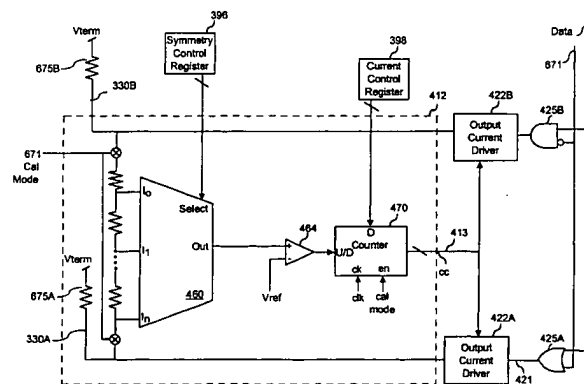


FIG. 20

Horowitz 15:31-52

Horowitz Figure 20

Horowitz does teach a transmit clock and a mechanism for controlling the phase of the transmit clock. With reference to Figure 15, for example, a “Transmit Timing Center Control Register 400 stores a topography dependent parameter for adjusting a transmit clock signal so the transmitted signal will be received by Master 302 near the center of the data eye” (Horowitz, 11:7-11). This functionality does not alter the phase of one transmit clock signal with respect to another, as recited in claim 1, and does not vary the phase of “first transmit data with respect to the second transmit data to misalign the first and second transmit data at a victim receiver” (claim 1). Nor does Horowitz suggest such adjustments.

Claims 3-7

Claims 3-7 depend from claim 1, and consequently distinguish Horowitz and Thibeault for at least the same reasons claim 1 distinguishes.

Claims 8, 9, and 11-15

Claim 8 includes a phase adjustment circuit that “dynamically varies the timing of the first transmit data with respect to the second transmit data.” As noted previously, the examiner has shown no support for such dynamic phase adjustment. The rejection of claim 8 should therefore be withdrawn.

Claims 9 and 11-15 depend from claim 8, and therefore distinguish the references for at least the same reasons claim 8 distinguishes. The rejections of claims 9 and 11-15 should therefore be withdrawn.

Claim 21

Claim 21 recites a method that includes:

transmitting first and second data signals timed to respective first and second transmit clocks to respective first and second receivers;

monitoring an output of the second receiver for errors induced by the first data signal; and

adjusting, in response to the monitoring, the timing of the first transmit clock in relation to the second transmit clock.

The examiner remarks that Thibeault discloses:

monitoring an output of the second receiver for errors induced by the first data signal (Page 5, [0092]); and adjusting, in response to the monitoring, the timing of the first transmit clock in relation to the second transmit clock (Page 6, [0093]-[0094]).

(Office Action, page 12). Applicant disagrees with this characterization. Thibeault's paragraphs [0092]-[0094] relate to Thibeault's Figure 22, a transmitter, and make no mention of “monitoring” a receiver for errors. In failing to identify the “monitoring” step of claim 21 in either reference, the examiner has failed to establish a *prima facie* case of obviousness. The rejection of claim 21 should therefore be withdrawn.

Claims 22- 24

Claims 22-24 depend on claim 21, and therefore distinguish the cited art for at least the same reasons claim 21 distinguishes. The rejections of claims 22-24 should therefore be withdrawn.

Claim 25

The examiner recognizes that Thibeault “fails to teach adjusting the phase of the first transmit clock in relation to the second transmit clock” in the manner of claim 25 (Office action, page 13), but finds support for this aspect in Horowitz. “Horowitz teaches a phase adjustment circuit that derives the first transmit clock from a reference signal and adjusts the first transmit clock to vary the phase of the first transmit data with respect to the second transmit data (**Col. 15, lines 31-52**)” (Office Action, page 14). As noted above in connection with the rejection of claim 1, the cited portion of Horowitz—reproduced above—describes an adjustment to output driver current, not clock phase. Horowitz thus fails to supply the element admittedly absent in Thibeault, so the examiner’s rejection does not meet the requirements of a *prima facie* case of obviousness and should be withdrawn.

Claims 26-28

Claim 26 recites a system with dynamic phase adjustment in means-plus-function form, and stands rejected for the reasons presented for claim 1. Applicant has shown that neither reference teaches dynamic phase adjustment as recited in claim 1, and these arguments apply equally to the “dynamic phase-adjusting means” of claim 26. The rejection of claim 26 should therefore be withdrawn.

Claims 27 and 28 depend from claim 26, and thus distinguish the cited references for at least the same reasons claim 26 distinguishes. The rejections of claims 27 and 28 should therefore be withdrawn.

Claim 29

Claim 29, as amended, recites a communication system in which “at least one of [an] aggressor transmitter and [a] victim receiver includes phase-adjustment circuitry adapted to dynamically alter the aggressor data phase relative to the victim data phase to reduce crosstalk from the aggressor transmitter to the victim receiver” (Claim 29,

emphasis added). The examiner finds this aspect in Horowitz in the manner discussed above in connection with claims 1 and 25. Applicant has pointed out, however, that the cited portion of Horowitz relates to adjustments in output driver current, and not dynamic phase adjustments. The rejection of claim 29 should therefore be withdrawn.

Claims 30 and 31

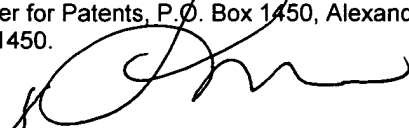
Claims 30 and 31 stand rejected under §103 over Thibeault in view of Horowitz and further in view of Cioffi (U.S. Patent No. 5,887,032). Cioffi is used to show that crosstalk can be NEXT or FEXT. Claims 30 and 31 depend from claim 29, however, and therefore distinguish the references for at least the same reasons claim 29 distinguishes. The rejections of claims 30 and 31 should therefore be withdrawn.

Other Claims

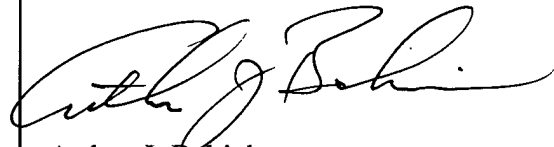
The examiner did not expressly reject claims 32-35, which were added in applicant's prior office-action response of 31 October 2007. These claims depend from claim 1, and consequently distinguish the references for at least the same reasons claim 1 distinguishes.

CONCLUSION

Applicant believes the pending claims to be in condition for allowance, and consequently requests the examiner issue a notice of allowance. If the examiner's next action is other than the allowance of the pending claims, the examiner is requested to call applicant's representative at (925) 621-2113.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA. 22313-1450.	
4/2/08 Date	 Laurie Moreno

Respectfully submitted,



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